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95 SOUTH MARKET ST., SUITE 420   TELEPHONE (408) 971-2573
SAN JOSE, CA 95113   FAX (408) 971-4660

FAX COVER SHEET

Date:	July 13, 2005	Phone Number	Fax Number
To:	Examiner Huyen X. Vo		(703) 872-9306
From:	Erica Farlow		

App. No: 09/797,115

Total Number of Pages Being Transmitted, Including Cover Sheet: 14

Message:

Please deliver to Examiner Vo.

Examiner Vo,

As a follow-up to my phone message earlier today, please find the following office action.
Please notice the cover page of the office action refers to application 09/802,394 which is
currently handled by my office. However, the pages following the first page refer to
application number 09/797,115, which is not handled by my office.

Please contact me with any questions.

Thank you,

Erica

Erica Farlow

☐ *Original to follow Via Regular Mail* **X** _Original will Not be Sent_   ☐ *Original will follow Via Overnight Courier*

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ANY OTHER DIFFICULTY, PLEASE PHONE _____Erica_____
AT (408) 971-2573 AT YOUR EARLIEST CONVENIENCE**

July 13, 2005

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,394	03/09/2001	John E. Fitzpatrick	BVOCP013	7562

28875   7590   07/01/2005

Zilka-Kotab, PC
P.O. BOX 721120
SAN JOSE, CA 95172-1120

EXAMINER
MCFADDEN, SUSAN IRIS

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	09/797,115	ROTOLA-PUKKILA ET AL.
	Examiner	Art Unit	
	Huyen X. Vo	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _29 April 2005_.

2a) ☒ This action is FINAL.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-19_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-13 and 18-19_ is/are rejected.

7) ☐ Claim(s) _14-17_ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _01 March 2001_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some *   c) ☐ None of:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 1-04)   Office Action Summary   Part of Paper No./Mail Date 14

PAGE 3/15 * RCVD AT 7/13/2005 7:47:56 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/3 * DNIS:8729306 * CSID:408 971 4660 * DURATION (mm-ss):05-02

DETAILED ACTION

Response to Amendment

1.   Applicant has submitted an amendment filed 4/29/2005 arguing to traverse the art rejection based on an amended limitation regarding *"means for generating a second linear prediction filter, to be used by the vocoder on the second frequency band, by employing an algorithm on the basis of generated information describing said regularities"* (see claim amendment and the remark section). Applicant's arguments have been fully considered but they are not persuasive. Since the term "regularities" is not clearly and/or adequately defined in the specification and claim language, such term is left for open interpretation. And examiner interpreted the term "regularities" as signal information or signal characteristics of the lower band signal that are used to generate a high-band signal. Such signal information or signal characteristics are clearly anticipated by Tsushima et al. reference (*the operation of figure 2, using signal characteristics/information of a narrow band signal to generate a high band signal*). Also, claim amendment does not overcome prior art of record in that admitted prior art must use an algorithm of some sort to generate a second linear prediction filter for used by the vocoder on the second frequency band. Therefore, previous ground of rejection is maintained.

Allowable Subject Matter

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2.   Claims 14-17 are objected to as being dependent upon a rejected base claim,

but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject

matter: regarding claim 14, both applicant's admitted prior art and Tsushima et al.

disclose the method of bandwidth expansion, but both fail to specifically disclose the

step of extrapolating the first parameter representation into a second parameter

representation in frequency domain comprising the substep of determining the values of

the second parameter representation as 10 f w (i) = [k = i - L i - 1 b ((i - 1) - k) f w (k), i

= n n , , n w - 1, f n (i) , i = 0 , , n n - 1 where .function..sub.w(i) is the i:th value of said

second parameter representation, k is a summing index, L is the order of said infinite

impulse response filter and b((i-1)-k) is the ((i-1)-k):th element of the vector

representation for the infinite impulse response filter. And claims 15-17 further limit their

parent claim and thus claims 14-17 are allowable subject matters.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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4.   Claims 1-13 & 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Tsushima et al. (US 5978759).

5.   Regarding claims 1 and 8, applicant's admitted prior art discloses a speech processing device and a digital radio telephone, comprising: an input for receiving a linear prediction encoded speech signal representing a first frequency band (*input of decoder 103 in figure 1*); means for extracting, from the linear prediction encoded speech signal, information describing a first linear prediction filter associated with the first frequency band (*page 2, lines 1-3*); a vocoder for converting an input signal into an output signal representing a second frequency band (*page 2, lines 8-9*); and means for generating a second linear prediction filter, to be used by the vocoder on the second frequency band, by employing an algorithm on the basis of generated information describing the first linear prediction filter (*page 2, lines 1-3*).

Applicant's admitted prior art fails to disclose means for generating information of regularities between frequency domain filter coefficients of the first linear prediction filter. However, Tsushima et al. teach means for generating information of regularities between frequency domain filter coefficients of the first linear prediction filter (*col. 3, lines 14-58, particularly lines 35-45*).

Since applicant's admitted prior art and Tsushima et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify applicant's admitted prior art by incorporating the teaching of Tsushima et al. in order to control the LPC synthesis

filter to synthesize the narrowband input speech signal into a wideband speech signal to improve speech quality.

6.   Regarding claims 18-19, applicant's admitted prior art discloses a speech processing device and method, comprising: an input for receiving a linear prediction encoded speech signal representing a first frequency band (*input of decoder 103 in figure 1*); means for extracting, from the linear prediction encoded speech signal, information describing a first linear prediction filter associated with the first frequency band (*page 2, lines.1-3*); a vocoder for converting an input signal into an output signal representing a second frequency band (*page 2, lines 8-9*); means for generating a second linear prediction filter, to be used by the vocoder on the second frequency band, by employing an algorithm on the basis of the information describing the first linear prediction filter (*page 2, ln. 1-3*).

Applicant's admitted prior art fails to specifically disclose the step of generating means extrapolates from a vector representation of the first linear prediction filter, so that said extrapolating involves using vector elements obtained from an autocorrelation of a vector difference among frequency domain coefficients of the first linear prediction filter. However, Tsushima et al. teach the step of generating means extrapolates from a vector representation of the first linear prediction filter, so that said extrapolating involves using vector elements obtained from an autocorrelation of a vector difference among frequency domain coefficients of the first linear prediction filter (*col. 3, line 59 to col. 4, line 60 or referring to figure 2*).

Since applicant's admitted prior art and Tsushima et al. are analogous art

because they are from the same field of endeavors, it would have been obvious to one

of ordinary skill in the art at the time of invention to modify applicant's admitted prior art

by incorporating the teaching of Tsushima et al. in order to control the LPC synthesis

filter to synthesize the narrowband input speech signal into a wideband speech signal to

improve speech quality.

7.   Regarding claims 6 and 10, applicant's admitted prior art discloses a speech

processing device and method comprising: a decoder for converting a linear prediction

encoded speech signal into a first sample stream having a first sampling rate and

representing a first frequency band (BACKGROUND OF THE INVENTION SECTION);

a vocoder for converting an input signal into a second sample stream having a second

sampling rate and representing a second frequency band (BACKGROUND OF THE

INVENTION SECTION); combination means for combining the first and second sample

streams in processed form (107 of figure 1); and means for generating a second linear

prediction filter, to be used by the vocoder on the second frequency band, on the basis

of a first linear prediction filter used by the decoder on the first frequency band

(BACKGROUND OF THE INVENTION SECTION).

8.   Regarding claims 2 and 11, applicant's admitted prior art fails to disclose the

steps of: converting a first linear prediction filter into a first parameter representation in

frequency domain; extrapolating the first parameter representation into a second

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parameter representation in frequency domain; and converting the second parameter

representation into the second linear prediction filter. However, Tsushima et al. further

teach the steps of converting a first linear prediction filter into a first parameter

representation in frequency domain (*col. 3, lines 15-40*); extrapolating the first

parameter representation into a second parameter representation in frequency domain

(*col. 3, lines 35-58, the conversion of narrowband signal into a wideband signal*); and

converting the second parameter representation into the second linear prediction filter

(*col. 3, lines 46-58*).

Since applicant's admitted prior art and Tsushima et al. are analogous art

because they are from the same field of endeavors, it would have been obvious to one

of ordinary skill in the art at the time of invention to further modify applicant's admitted

prior art by incorporating the teaching of Tsushima et al. in order to control the LPC

synthesis filter to synthesize the narrowband input speech signal into a wideband

speech signal to improve speech quality.

9.   Regarding claim 7, applicant's admitted prior art discloses a sampling rate

interpolator coupled between the decoder and the combination means (104 of figure 1)

and a high pass filter coupled between the vocoder and the combination means (106 of

figure 1).

10.   Regarding claim 9, applicant's admitted prior art discloses a method for

processing digitally encoded speech, comprising the steps of: extracting, from a linear

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prediction encoded speech signal, information describing a first linear prediction filter

associated with a first frequency band (*page 2, lines 1-3*); converting an input signal into

an output signal representing a second frequency band (*page 2, lines 8-9*); and

generating a second linear prediction filter, to be used in the conversion of the input

signal to the output signal, on the basis of the generated information describing

regularities (*page 2, lines 1-3*).

Applicant's admitted prior art fails to disclose the step of generating information

of regularities between frequency domain filter coefficients of the first linear prediction

filter. However, Tsushima et al. teach the step of generating information of regularities

between frequency domain filter coefficients of the first linear prediction filter (*col. 3,*

lines 14-58, particularly lines 35-45).

Since applicant's admitted prior art and Tsushima et al. are analogous art

because they are from the same field of endeavors, it would have been obvious to one

of ordinary skill in the art at the time of invention to modify applicant's admitted prior art

by incorporating the teaching of Tsushima et al. in order to control the LPC synthesis

filter to synthesize the narrowband input speech signal into a wideband speech signal to

improve speech quality.

11.   Regarding claims 3 and 12, applicant's admitted prior art fails to specifically

disclose means for extrapolating a first parameter representation into a second

parameter representation in frequency domain comprise an infinite impulse response

filter. However, Tsushima et al. teach means for extrapolating a first parameter

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representation into a second parameter representation in frequency domain comprise

an infinite impulse response filter (*col. 3, lines 47-52*).

Since applicant's admitted prior art and Tsushima et al. are analogous art

because they are from the same field of endeavors, it would have been obvious to one

of ordinary skill in the art at the time of invention to further modify applicant's admitted

prior art by incorporating the teaching of Tsushima et al. in order make it easy to

implement, maintain, and update the IIR filter.

12.   Regarding claims 4 and 13, applicant's admitted prior art fails to specifically

disclose means for deriving a vector representation of the infinite impulse response filter

from the first parameter representation. However, Tsushima et al. teach means for

deriving a vector representation of the infinite impulse response filter from the first

parameter representation (col. 3, ln. 47-52).

Since applicant's admitted prior art and Tsushima et al. are analogous art

because they are from the same field of endeavors, it would have been obvious to one

of ordinary skill in the art at the time the invention was made to modify applicant's

admitted prior art by incorporating the teaching of Tsushima et al. in order to make it

easy to implement, maintain, and update the IIR filter.

13.   Regarding claim 5, applicant's admitted prior art fails to specifically disclose

means for limiting the second parameter representation. However, Tsushima et al.

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further teach a mean for limiting the second parameter representation (*gain controller*

604 of figure 6).

Since applicant's admitted prior art and Tsushima et al. are analogous art

because they are from the same field of endeavors, it would have been obvious to one

of ordinary skill in the art at the time the invention was made to further modify

applicant's admitted prior art by incorporating the teaching of Tsushima et al. in order to

appropriately scale the gain of the wideband filter.

Conclusion

The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Omori et al. (US 6539355) and Miet et al. (US 6681202) teach

bandwidth expansion methods that are considered pertinent to the claimed invention.

Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Huyen X. Vo whose telephone number is 571-272-7631.

The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

HXV   6/29/2005

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SUSAN MCFADDEN
PRIMARY EXAMINER

	Notice of References Cited	Application/Control No. 09/797,115	Applicant(s)/Patent Under Reexamination ROTOLA-PUKKILA ET AL	
		Examiner Huyen X. Vo	Art Unit 2655	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,539,355	03-2003	Omori et al.	704/268
	B	US-6,681,202	01-2004	Miet et al.	704/214
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
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	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)   **Notice of References Cited**   Part of Paper No. 14